

## **JOINT SYMBOL, AMPLITUDE, AND RATE ESTIMATOR**

### **ABSTRACT OF THE DISCLOSURE**

[00143] The system in one embodiment relates to tightly integrating parameter estimation, symbol hypothesis testing, decoding, and rate identification. The present invention provides Turbo-decoding for joint signal demodulation based on an iterative decoding solution that exploits error correction codes. The system iteratively couples an initial amplitude estimator, a symbol estimator, a bank of decoders, and a joint amplitude estimator to produce the symbol estimates.